



The Wasatch Range is one of hundreds of normal-fault-bounded ranges in the Great Basin. This is the range that forms the east side of the Great Salt Lake and whose waters had been irrigating Mormon farms around Salt Lake City and Ogden for 20 years when the Union Pacific arrived in 1869. The Wasatch Range forms a veritable wall with elevations of more than 10,000 feet and would be impenetrable to railroads except that a "water gap" exists. About 10 million years ago, before the uplift of the Wasatch and other normal-fault ranges in the Basin and Range geologic province (Great Basin hydrologic province), a river flowed westward across the area from the Rocky Mountains (which are 50 million years old). Down-cutting of the river kept pace with the rise of the range and maintained a water gap through the range, represented now by the Weber River, which flows into Great Salt Lake, and a tributary of the Weber River, Echo Canyon. Thanks to this water gap, the UP mainline west of the Aspen and Altamont tunnels is able to follow a constant downhill grade from Wyoming into Utah and through the Wasatch range "wall" to the Great Salt Lake.

This northward view of the UP mainline at Wahsatch, Utah, in upper Echo Canyon, where the UP arrived in late 1868. The original line is in the foreground and a second, higher, lower-grade line with a tunnel is in the distance. This second line was likely built during the period 1900-1918.